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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Gregory J. Hewlett

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TEXAS INSTRUMENTS INCORPORATED

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EXAMINER

KUMAR, SRILAKSHMI K

ART UNIT

PAPER NUMBER

2629

NOTIFICATION DATE

DELIVERY MODE

01/29/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 09/637,495	Applicant(s) HEWLETT ET AL.	
	Examiner Srilakshmi K. Kumar	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/05/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) 10-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The following office action is in response to the amendment filed on November 5, 2007. Claims 1-12 are pending. Claims 10-12 are newly added.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldwin (US 5,986,640) in view of Markandey et al. (US 5,751,379).

With reference to **claim 1**, Baldwin teaches a method of receiving an image word for an image pixel (column 4, lines 1-4) and the image data word comprises of a plurality of bits (see Figures 4 and 5). Baldwin divides an image frame period into at least two refresh (reset) periods (see column 5, lines 8-20), wherein each refresh period comprises a period in which at least two image data bits are displayed (figure 4a-4e shows the division of sub-frames and column 5, lines

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8-59). As shown in figures 6a - 6e, Baldwin teaches displaying the first image data bit during some, but not all, of the refresh period and displaying the second image data bit during more of the refresh period than the first image data bit was displayed. Further in Figure 6c it can be seen that the bits of the image word are displayed (from the outside to the inside) for each of the refresh periods, although not all bits (bits 2 and 1) of the image data word are displayed in each refresh period (see column 7, lines 14-62), such that a viewer sees substantially the same image repeated for each refresh period of the frame period (col. 7, lines 14-62). Baldwin teaches reducing flicker in col. 7, lines 47-52.

Baldwin does not teach where the bits of said image word are displayed in a same predetermined relative temporal order for each refresh period. Markandey et al teaches in Fig. 3 and in col. 3, lines 38-col. 4, line 10, where the bits are displayed in the same order from 7-1 for each frame period. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the same order for the bits in each frame as taught by Markandey et al into the display method of Baldwin as by displaying in the same order Markandey et al allows the use of higher numbers of bits to avoid contouring and artifacts in the final displayed image and does not require high transition of switching time of the spatial light modulator elements.

With reference to **claim 2**, Baldwin teaches all that is required as explained above with reference to **claim 1**, Baldwin also teaches that these the display periods are allocated to prevent flicker of the image data bit display by the method described in rejection of **claim 1** (column 7, lines 19-25 and lines 34-47).

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With reference to **claim 3**, Baldwin teaches all that is required as explained above with reference to **claims 1 and 2**, Baldwin also teaches a controlling circuit (119) that receives the video signal and determines the amount of time the light should be modulated on the mirror devices (column 4, lines 1-15) in accordance to the limitations as explained above with reference to **claims 1 and 2**; a display device (101) in electrical communication with the controller (see column 3, line 39-column 4, line 22), said display device for providing a modulated light beam to each of an array (117) of image pixels (see column 3, lines 58-62), said modulation in response to said processed image data from said controller (see column 4, lines 16-44).

With reference to **claims 4-9**, Baldwin teaches in Figure 6e a method of dividing an image frame period into at least three refresh periods wherein a first image data bit is displayed during at least one refresh period (1, 2), a second image data bit is displayed during at least two refresh periods (4a, 4b), and a third said image data hit is displayed during at least three refresh periods (16a, 16b, 16c) and where first second and third image data bits are displayed during different numbers of refresh periods.

Allowable Subject Matter

4. Claims 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments filed November 5, 2007 have been fully considered but they are not persuasive.

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Applicants argue where the prior art of Baldwin does not teach where the pattern is repeated at the refresh rate. Examiner, respectfully, disagrees. As shown by Figures 6a-e, Baldwin consist of a period in which at least two image data bits are displayed, and in col. 8, lines 13-15, Baldwin teaches that reset pulses are applied every two units to prepare the mirror device for the next orientation state. Therefore, Baldwin teaches where the pattern is repeated at the refresh rate. Further, in col. 6, lines 47-52, Baldwin clearly states flicker is reduced.

Baldwin does not teach where the bits of said image word are displayed in a same predetermined relative temporal order for each refresh period. Markandey et al teaches in Fig. 3 and in col. 3, lines 38-col. 4, line 10, where the bits are displayed in the same order from 7-1 for each frame period. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the same order for the bits in each frame as taught by Markandey et al into the display method of Baldwin as by displaying in the same order Markandey et al allows the use of higher numbers of bits to avoid contouring and artifacts in the final displayed image and does not require high transition of switching time of the spatial light modulator elements.

Applicant argues where Markandey does not teach where the bits of said image word are displayed in the same order for each refresh period. Examiner, respectfully, disagrees. Markandey et al teach in Fig. 3 and in col. 3, lines 38-col. 4, line 10 where the bits are displayed in the same order for each frame period. The prior art of Markandey is primarily added to show where the image work is displayed in a same order. It would have been obvious to combine Baldwin and Markandey in order to teach the order of the image word to display in order to

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prevent contouring in the final displayed image. Further, Baldwin teaches where flicker is reduced in col. 6, lines 47-52.

Applicant argues where Markandey does not teach reducing flicker. Examiner, agrees where Markandey does not teach the feature of reducing flicker. However, the prior art of Markandey is combined with Baldwin to teach displaying the same order for the bits of the image work in order to reduce contouring of the image and reducing the switching time. The prior art of Baldwin teaches the reduction of flickering in col. 6, lines 47-52.

With respect to applicant's arguments of where changing the order of bits to repeat in Baldwin would be contrary to the outcome of Baldwin, examiner, respectfully, disagrees. The addition of the feature of displaying in the same order of Markandey would enable reduced transition times between the states with higher bit systems in col. 2, lines 54-64. As Baldwin teaches higher bit systems, the combination of Baldwin and Markandey would enable lower transition times in Baldwin.

With respect to applicant's arguments of where Baldwin doesn't teach a minimum temporal frequency and prevent flickering, examiner, respectfully, disagrees. Baldwin teaches this feature in col. 6, lines 47-52.

With respect to newly added claims 10-12, these claims have been objected to as having allowable subject matter.

As shown by the rejection above and the response to the remarks, the prior art of Baldwin in combination with Markandey teach the claimed limitations.

Conclusion

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6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srilakshmi K. Kumar whose telephone number is 571 272 7769. The examiner can normally be reached on 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Lefkowitz can be reached on 571 272 3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Srilakshmi K Kumar
Examiner
Art Unit 2629

SKK
January 16, 2008



SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER